REMARKS/ARGUMENTS

Reconsideration and allowance of this application are respectfully requested in view of the above amendments and the comments that follow.

This Amendment is accompanied by a copy of the earlier submitted Communication and document entitled, "POWER OF ATTORNEY, CHANGE OF CORRESPONDENCE ADDRESS AND CHANGE OF ATTORNEY DOCKET NUMBER", whereby all powers of attorney previously given are revoked and whereby specified individuals, including the undersigned, have been granted power of attorney to prosecute and transact all business in the United States Patent and Trademark Office. Also, please note the Change of Correspondence Address and the Change of Attorney Docket Number also set forth in the accompanying document.

This response is timely filed as it is filed within the three (3) month shortened statutory period for response to the outstanding Office Action.

Reconsideration and allowance of this patent application are respectfully requested in view of the above amendment and the comments that follow.

The drawings have been objected to. Replacement drawings (i.e., Formal Drawings) are submitted herewith. In each of FIGS. 2, 3 and 13, "WGO BURNER" has been replace with --WGO ASSEMBLY– and in each of FIGS. 2 and 3, "ATR REACTOR" has been replaced with --ATR ASSEMBLY--.

The above amendment serves to obviate the objection to claim 31 for lack of definition of SMR section. The term "SMR" is defined in the specification at page 4, line 12. The recitation in the claims of a section of the ATR is redundant since the steam reforming can take place throughout the ATR. See, for instance, page 5 of the specification.

Claims 1 to 31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bloomfield, U.S. Patent 3,976,507.

Applicants' invention claimed in claims 1 to 29 and 31 involves the use of a waste gas oxidizer (WGO) positioned such that the heat from the combustion heats both feed to an autothermal reactor (ATR) and the ATR itself. The invention provides numerous advantages in addition to heat recovery from a waste gas such as an anode waste gas of a fuel cell. The invention enables enhanced ATR efficiencies to be obtained as well as the ability to better control the thermal environment of the reforming, especially with respect to transient operations. The invention of claim 30 pertains to the control of an ATR wherein the oxidant flow rate to the ATR is independently controlled with reference to the fuel feed rate so as to enhance transient response and to enhance efficiency of the reforming process.

Bloomfield does not disclose or suggest applicants' claimed invention. Bloomfield uses a heat exchanger to heat feed to a reformer, but the heat exchange is with the effluent from the reformer – not a WGO. The temperature and amount of heat provided by the reformer effluent stream is fixed for a given operation and cannot provide the flexibility that can be achieved by the use of a WGO in accordance with this invention. Moreover, the patentee does not disclose or suggest using a heat exchanger that encompasses at least a portion of the reformer.

The fact is that a penalty, would result if the heat exchanger of Bloomfield were to encompass all or a part of the reformer. Reforming is an endothermic reaction and *the temperature of the effluent from the reforming would thus be lower than desired temperature for the reforming*. If the reformer were in heat exchange with its effluent, the effluent would serve to **cool**, not provide the sought heating of the reformer. Accordingly, the assertion by the Patent and Trademark Office that applicants' invention is simply making elements integral, is unfounded. The WGO of the invention is not a heat exchanger as described by Bloomfield, and making Bloomfield's heat exchanger integral would not provide the benefits of applicants' invention but rather be detrimental.

Further, Bloomfield requires the combustion values in the anode waste gas to be used to provide a stream of sufficient heat that it can be used to power turbine 42 for compressing air. See, for instance, column 2, lines 25 to 31, and column 5, lines 3 to 6. Hence, Bloomfield teaches away from any process that would combust anode waste gas for any other reason.

With respect to claim 30, Bloomfield teaches away from applicants' invention. Bloomfield appears to link the rate of oxidant to the reformer with the rate of fuel flow. See, for instance, column 8, lines 8 to 18. In applicants' invention, the air flow is independently controlled so as to handle transient conditions and to provide efficient operation. Note at column 8, lines 25 to 35, Bloomfield recognizes the transient problem and solves it, not with anything remotely approaching applicants' invention, but rather with a battery storage mechanism.

It is respectfully submitted that the rejection of the claims under 35 U.S.C. 103 over Bloomfield can only be fashioned by the improper use of hindsight. Accordingly, this rejection of the claims is improper and should be withdrawn.

An early, favorable action with an allowance of the claims is earnestly solicited. Should the Examiner detect any remaining issue or have any question, the Examiner is kindly requested to contact the undersigned, preferably by telephone, in an effort to expedite examination of this application.

Respectfully submitted,

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